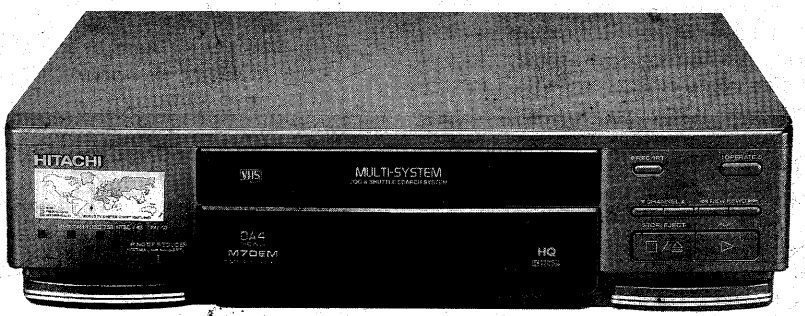
HITACHI VIDEO CASSETTE RECORDER

VT-M70EM



Instruction manual

To obtain the best performance and ensure years of trouble-free use, please read this instruction manual completely.

VHS

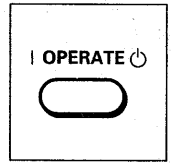
PAL NTSC

WARNING

Mains supply:

- This VCR can be used with a power (mains) voltage of 110 ~ 240V around the world.

The OPERATE switch of the VCR switches the VCR on and off, leaving the clock/timer facility unaffected.
As to the indication of the OPERATE switch, "I" shows ON and " ⏻ " shows electrical power stand-by.



Notice:

The OPERATE switch is secondarily connected and does not separate the apparatus from the mains supply in the switched-off position.
If the unit is to be left unattended for a long period and it is not intended to use the timer recording function, it is recommended that the unit be completely switched off and the plug removed. If you intend to record during your absence, remember there is no necessity for the TV receiver to be switched on.

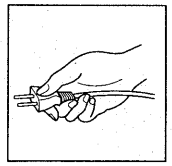
- Do not remove panel covers by unscrewing. There are no user serviceable parts inside. Refer all servicing to qualified service personnel.
- To prevent fire or shock hazard, do not expose this unit to rain or moisture.
- It is permissible to record television programmes only in the event that third party copyrights and other rights are not violated.
- **Note for colour broadcasting system**

1. SECAM (system B, G, D and K) colour programmes can be recorded in certain areas but there is no interchangeability of these recorded cassette tapes with other PAL-VHS recorders or SECAM-VHS recorders.
2. When a cassette recorded by this unit is played back on a SECAM-VHS recorder, a black and white picture will be obtained. When a cassette recorded by a SECAM-VHS recorder or pre-recorded SECAM cassette is played back with this unit, a black and white picture is obtained.
3. Please use the exclusive SECAM-VHS recorder in SECAM (system L) broadcasting areas.

PRECAUTIONS

On Safety

- Should any solid object or liquid fall into the cabinet, turn off the unit and have it checked by qualified personnel before operating it any further.
- To disconnect the mains lead, pull out the plug itself.
  Never pull the lead.



On Installation

- Choose a location where air can pass through the ventilation holes in the bottom, top and back of the unit to prevent it from overheating.
- Do not install the unit near heat sources such as radiators or air ducts or in a place subject to direct sunlight, excessive dust, mechanical vibrations or shocks.
- Never bring a magnet or magnetized object near the VCR because it will adversely affect the performance of the VCR.
- Do not install the unit in an inclined position. The unit is designed for operation in a horizontal position.

On Operation

- Moisture condensation
  If you pour a cold liquid into a glass, water vapor in the air will condense on the surface of the glass. This is moisture condensation.
  Moisture condensation on the head drum, one of the most crucial parts of the VCR, will cause damage to the tape.
  The VCR should not be operated for at least 2 hours after being moved from a cold to a hot environment to avoid condensation from occurring on the head drum.

On Cleaning

- Be careful; when the surface of the case is wiped with a volatile agent such as benzine, alcohol, thinner, etc., or a chemically processed cloth, the surface finish may deteriorate or its coating may peel.

On Repacking

- It is wise for you to save the packing materials and box in case you ever need to ship or store your unit.

FEATURES

Multi-record/playback system
It may be more realistically understandable to you how attractive this Video recorder is, if actual capability for recording/playback video signals with this unit are listed up, as follows.

(1) PAL-SP (Standard Play) tapes
(2) PAL-LP (Long Play) tapes
(3) MESECAM-SP tapes
(4) MESECAM-LP tapes
(5) NTSC-SP tapes
(6) NTSC-LP tapes (Playback only)
(7) NTSC-EP (Extra Long Play) tapes In addition to the above, the following 3 feature is counted.
(8) 4.43 NTSC/3.58 NTSC compatible for relevant colour TVs.
(9) B/G-PAL, D/K-PAL, I-PAL, B/G-SECAM, D/K-SECAM and NTSC recording with built-in tuner, & play with G/I/K/M RF converters.
(10) Possible to play NTSC recorded tapes on a PAL TV.

Eight hours long play/long recording compatible

(1) PAL/MESECAM - LP
.....maximum 8 hours (E240)
(2) PAL/MESECAM - SP
.....maximum 4 hours (E240)
(3) NTSC - EP
.....maximum 8 hours (T160)
(4) NTSC - LP
.....maximum 5 hours 20 min (T160)
(Playback only)
(5) NTSC - SP
.....maximum 2 hours 40 min (T160)

Multi-TV tuners built-in

(1) B/G for B/G-PAL and B/G-SECAM reception
(2) D / K for D / K-PAL and D / K SECAM reception
(3) I for I-PAL reception
(4) M for NTSC reception
With VT-M70EM, you can tune in to Middle East B/G-SECAM broadcast, American/Jpanese NTSC broadcast, European B/G-PAL, English I-PAL, the People's Republic of China D/K-PAL and C.I.S D/K-SECAM broadcast for recording to Video tape without additional TV tuner.

Four heads for optimum performance for both SP and LP/EP
Two kinds of width heads are installed to improve picture reproduction both for Standard Play and for Long Play operations.

Multi-RF converters built-in

(1) G for B/G - PAL/SECAM TV
(2) I for I-PAL TV
(3) K for D/K-PAL/SECAM TV
(4) Any system (Auto selection to M) for NTSC TV

Full automatic head cleaning system
Auto head cleaning system minimizes the need for accessory cleaners and professional head cleaning.

Three type game mode
You can enjoy a slot machine game, ball catch game and mastermind game.

Intelligent remote control with both TV and VCR control and jog dial/shuttle ring
The remote control unit controls the VT-M70EM, another compatible Hitachi VCR, or 14 different types of compatible TV sets. The jog/shuttle provides for forward or reverse variable speed playbacks.

Multi-search system for easily locating the desired scene

— VHS index search (see page 23 for details)
— GO-TO search by time counter (see page 24 for details)
— Visual search (see page 23 for details)

Quick action mechanism

Integrated jewel midy design

OSD (On-Screen Display) menu for programming and setting

Automatic controls for easier operation

— Auto Head Cleaning system minimizes the need for accessory cleaners and professional head cleaning.
— Auto Tracking system automatically adjusts the tracking when rental tapes or tapes recorded on another VCR are played back.
— Auto Play immediately starts to play a tape without its safety tab
— Auto Eject & Auto Tape Canceller eject cassette without its safety tab when recording
— Auto Endless Play repeats playing tape from beginning to end
— Auto Operate On turns system power on by simply inserting cassette
— Auto Rewind/Rewind Shutoff automatically rewinds tape at its end and automatically shuts off at its beginning if the OPERATE switch is pressed.

OSD (On-Screen Display) function displays the VCR mode, station number, tape remaining time and, date on the TV screen. You can also check the programme of the timer on the TV screen.

Frequency synthesized tuner provides easy, preset tuning for up to 49 channels

Instant recording timer (IRT) is possible

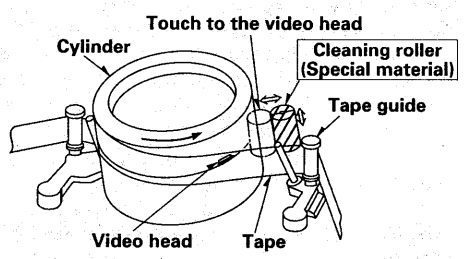
Mode lock can be used to lock the VCR mode (recording, play, etc.)

Sharp, finely detailed pictures from High Quality (HQ) picture technology

AUTO HEAD CLEANING SYSTEM

This system cleans the video heads automatically when a cassette is inserted and ejected or the operate switch is turned on or off while a cassette is in the VCR, to prevent dirt from accumulating on the heads.

NOTE: Mechanical sound is heard slightly during head cleaning.



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HOW TO ENJOY THIS MULTI-SYSTEM VIDEO CASSETTE RECORDER

There are various colour broadcasting systems in different parts of the world. Your TV set can receive TV broadcast in your area, but perhaps cannot receive colour broadcasts in other countries. There are tapes recorded with different colour broadcast systems.
Use this unit after fully understanding the following.

- **Broadcast systems that can be recorded with VT-M70EM** — **Table 1**

Broadcasting system for colour TV		B/G PAL	I-PAL	D/K-PAL	B/G-SECAM	D/K-SECAM	NTSC*2
Major Countries		Australia Germany Kuwait India Italy Singapore U.A.E Malaysia	Great Britain Hong Kong	China	Saudi Arabia Greece Lebanon Morocco Egypt	Bulgaria Ivory Coast C.I.S Mongolia	USA Canada Japan Philippines Mexico
VCR Recording Mode	PAL-SP *1	YES	YES	YES			
	PAL-LP	YES	YES	YES			
	MESECAM-SP				YES	YES	
	MESECAM-LP				YES	YES	
	NTSC-SP						YES
	NTSC-LP						
	NTSC-EP						YES
RF OUT SYSEM selection (G/I/K) (see page 14 for details)		G	I	K	G	K	ANY

*1 Suffixes "-SP", "-LP" and "-EP" mean the tape speeds of recorded tapes.
*2 In addition to the above recording NTSC 4.43 for VCR recording is possible only for dubbing purpose from NTSC 4.43 signal from other VCR.

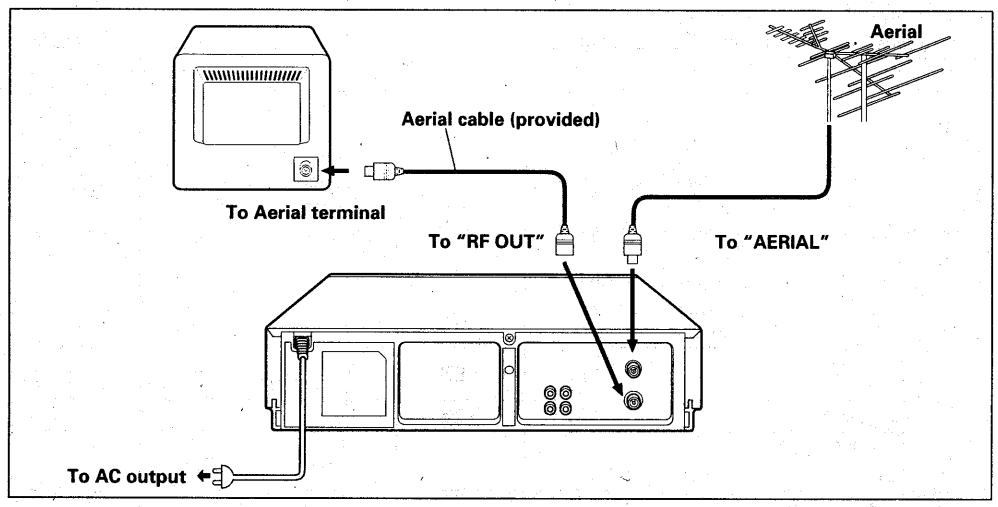
- **Types of tape playable with VT-M70EM and TV set to be connected** — **Table 2**

TV system / VCR playback mode	B/G-PAL colour TV	I-PAL colour TV	D/K-PAL colour TV	B/G-SECAM colour TV	D/K-SECAM colour TV	NTSC 3.58 colour TV	NTSC 4.43 colour TV	Multi-system colour TV (for example HITACHI CMT-2518/ 2718/ 2918)
PAL-SP	YES	YES	YES					YES
PAL-LP	YES	YES	YES					YES
MESECAM-SP				YES	YES			YES
MESECAM-LP				YES	YES			YES
NTSC-SP	*3 (YES)	*3 (YES)	*3 (YES)			YES	YES	YES
NTSC-LP	*3 (YES)	*3 (YES)	*3 (YES)			YES	YES	YES
NTSC-EP	*3 (YES)	*3 (YES)	*3 (YES)			YES	YES	YES

*3 It is possible to playback an NTSC recorded tape when the TV has vertical sync adjustment circuitry (or volume) for 60Hz.

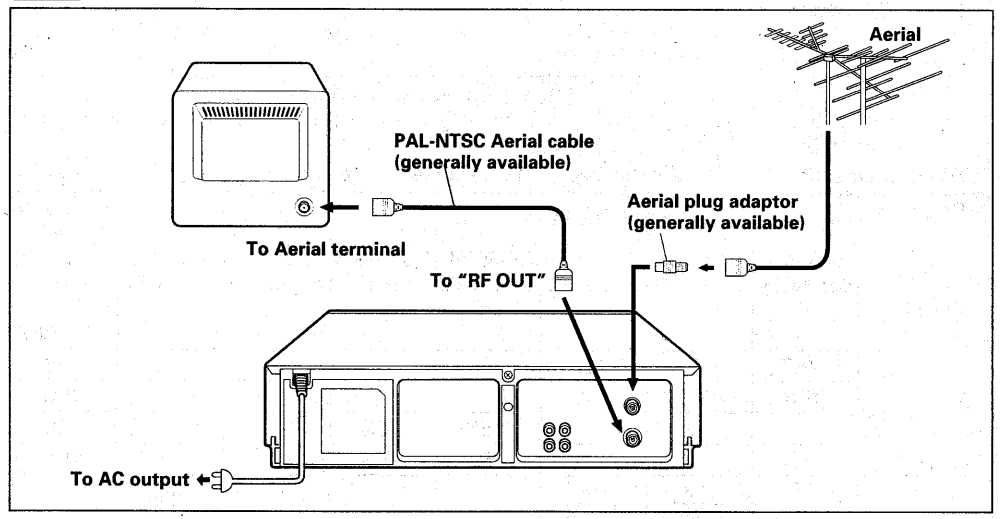
INSTALLATION

Type 1 When combined with a multi TV set [PAL: System B&G, SECAM B&G, NTSC 3.58MHz (standard) or 4.43MHz (modified)], PAL (system B&G, D&K or I) or SECAM (system B&G or D&K) TV set.



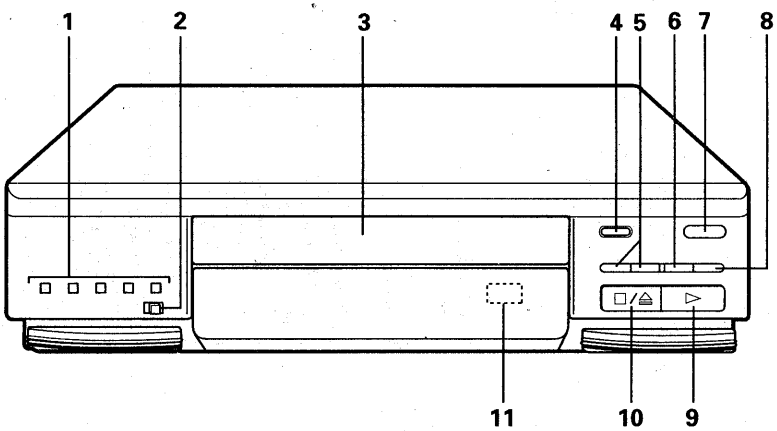
1. Remove the aerial cable from your TV set.
   Place this cable into the terminal marked "AERIAL" on the VCR.
2. Connect your TV to the RF OUT terminal with the supplied aerial cabel.
3. Plug into the mains.

Type 2 When combined with an NTSC (standard 3.58MHz) TV set.



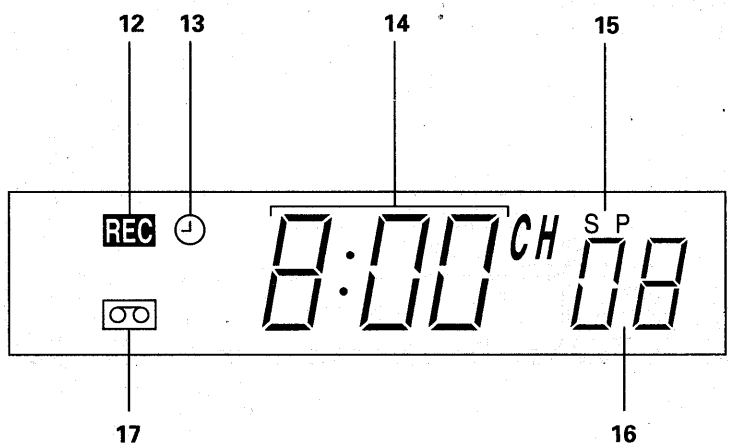
1. Connect the aerial to the aerial plug adaptor (generally available) and then connect it to the "AERIAL" on the VCR.
2. Connect the one end of the PAL-NTSC aerial cable (generally available) to the "RF OUT" terminal of this unit and the other end of cable to the aerial terminal of the TV set.
3. Plug into the mains.

CONTROLS AND FUNCTIONS



1. **Colour system indicators**
   Indicates the system corresponding to the colour system which is being recorded or played back.
2. **P. NOISE REDUCER (NORMAL/SOFT select switch)**
   Use this when playing back a tape.
   [NORMAL] Usually select [NORMAL]
   [SOFT] Specify [SOFT] when you are playing back a tape that has been used repeatedly for dubbing, etc. and the picture quality has deteriorated or to playback a tape with a high level of noise.
3. **Cassette compartment**
   Insert a cassette through the door, and loading will be completed automatically.
   NOTE: Power is turned on automatically when a cassette is loaded.
4. **REC/IRT button**
   Press the REC button once to start recording.
   Pressing again lets you select a recording time within 4 hours. After recording for the preset time, the VCR will automatically shut off. This is convenient when you go out during recording.
5. **CHANNEL buttons**
   Select the TV programmes you wish to view or record by pressing these buttons.
6. **REW (rewind) button**
   Press to start rewind.
   Press this button during playback and reverse playback picture can be viewed at high speed.
7. **OPERATE switch**
   Turn the system power on and off.
8. **F.FWD (fast forward) button**
   Press to activate fast forward.
   Press this button during playback and forward playback picture can be viewed at high speed.
9. **PLAY button**
   Press to start play.
   NOTE: When a cassette (with its safety tab removed) is loaded, playback starts automatically.
10. **STOP/EJECT button**
    If this button is pressed, while the set is operating, the running of tape stops and all operating modes are cancelled (except for timer recording). The cassette is ejected, when this button is pressed again in STOP mode.
    NOTE: Power may be on or off when removing the cassette.
11. **Infrared ray receiving section**
    Receives infrared rays from the remote control unit.

CONTROLS AND FUNCTIONS



12. REC (record) indicator
Will light in the record mode. Flashes during the record/pause mode.

13. Timer indicator
Will light when turning power off after programming. If you turn the OPERATE switch off to stand by for timer recording while a cassette without its safety tab is inserted or a cassette is not loaded, this indicator flashes.

14. Clock display
This displays the current time when the power is off. When power is turned on, you can switch the display between the clock and linear time counter by pressing the CLOCK/COUNT button on the remote control.

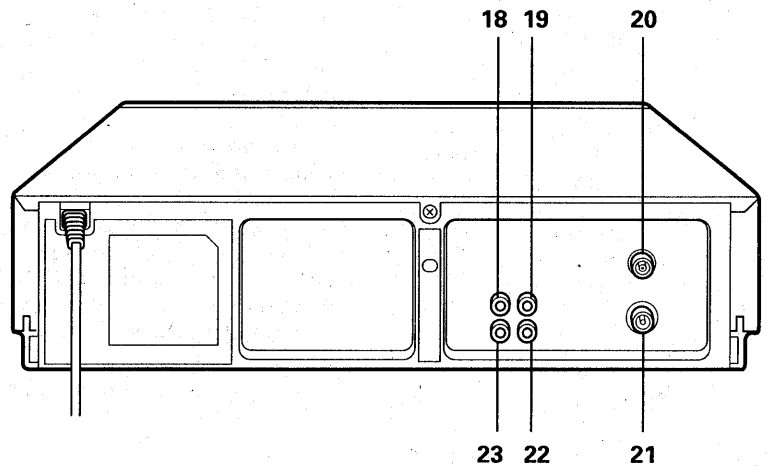
Mode indicators
When the VCR operation mode is changed, the following mode indicators will appear.

- "PLAY" appears during the playback mode.
- "REW" appears during the rewind mode.
- "FFWD" appears during the fast forward mode.
- "STILL" appears during the play pause mode and the frame advance mode.
- "SLOW" appears during the slow motion playback mode.
- "-PLAY" appears during the reverse playback mode.
- "SRCH" appears during the forward visual search mode.
- "-SRCH" appears during the reverse visual search mode.
- "-SLOW" appears during the reverse slow motion playback mode.

15. Tape speed indicator
Shows tape speed during recording and playback.
SP — Standard play **LP** — Long play (PAL)
EP — Extra long play (NTSC)

16. TV station number display
This shows the TV station number corresponding to the station selected.
The "L" indicator appears when you select the AUX position by pressing the AUX button on the remote control. "L" position is used to record or watch the programme input at the AUDIO IN/VIDEO IN jacks.

17. Tape indicator
Lights when cassette is loaded in the compartment.



18. AUDIO IN
Receives audio signals from a camera, external sound equipment or from another VCR.

19. VIDEO IN
Receives video signals from a camera, or another VCR.

20. AERIAL input socket
Connect an external aerial.

21. RF OUT socket
Connect to TV aerial input.

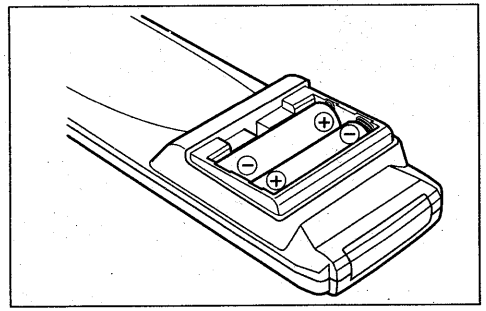
22. VIDEO OUT
Permits video connection of your unit to a monitor or another VCR.

23. AUDIO OUT
Permits audio connection of your unit to a monitor or another VCR.

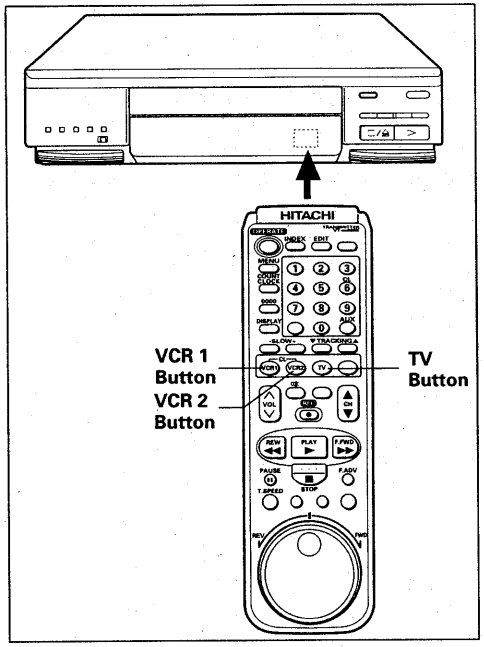
REMOTE OPERATION

You can operate the VCR from a distance using the Infrared Remote Control unit which performs the same functions as the corresponding buttons on the VCR.

Power source of infrared remote control unit
The infrared remote control unit is powered by two batteries (size IEC standard R6). The life of the batteries is about a year although it depends on the number of times the unit is used. Replace the batteries when operation is not possible or when the distance becomes too small.



Remote operations
To operate the VCR with the remote control, press the VCR1 button on the remote control unit, then point it at the receiver on the front of the VCR.

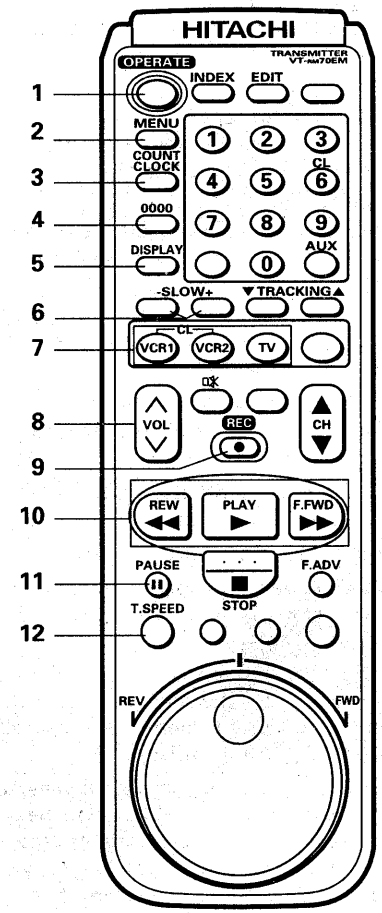


VCR 1/VCR 2/TV buttons
The remote control unit provided is designed to operate two VT-M70EM units and 14 different types of TV.

- Refer to page 36 when using the remote control to operate the TV.
- Follow the procedure below when operating two VCRs.

For tape dubbing, as an example, recording VCR and playback VCR can be controlled by a single remote control unit. When controlling two VCRs, operate the other VCR as the VCR 1 and this VCR as the VCR 2. However, this VCR has been preset to be controlled as the VCR 1. Therefore, set this VCR so it can be controlled as the VCR 2 by following the "REMOTE CODE 1 or 2" section on page 27.

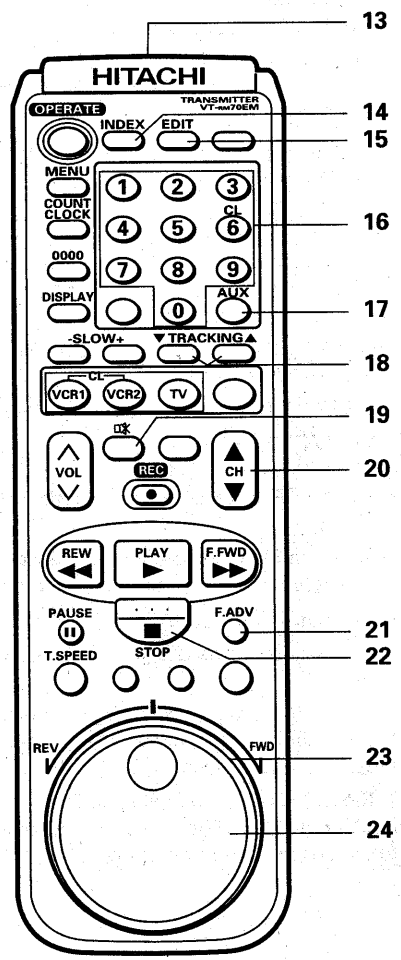
Controls and functions



1. **OPERATE:** Same as OPERATE on the VCR (turns operate on/off).
2. **MENU:** Press this button, the menu will be displayed on the TV screen. The menu is used for most programming and setting operations.
3. **COUNT/CLOCK:** Press to switch the VCR display between the clock time display and linear time counter display.
4. **0000:** Used for counter reset button when the linear time counter is displayed in the VCR's display. Also used for On-Screen programming and setting.
5. **DISPLAY:** Controls the On-Screen Display. See page 26 for details.
6. **SLOW/–/+:** Used for slow motion play.
7. **VCR 1/VCR 2/TV**
   - Press TV to control the TV.
   - Press VCR 1 or VCR 2 to control two VCR units.
8. **VOL(volume):** Increase or decrease the audio volume.
9. **REC:** Same as on the VCR.
10. **Play/rewind/fast forward:** Same as on the VCR.
11. **PAUSE:** Press to pause during recording. Press to view a still picture during playback. Press again to release.
12. **T. SPEED:** Select the tape speed for recording. The playback speed is automatically set to the speed used in recording.

REMOTE OPERATION

Controls and functions

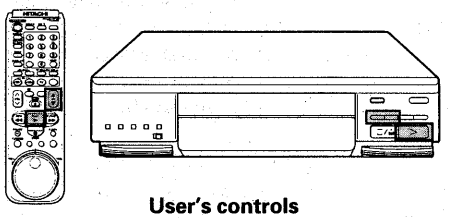


13. **Transmission window:** Transmits commands to the VCR.
14. **INDEX:** Used for INDEX and GO-TO functions. See page 23 for complete information.
15. **EDIT:** Used for tape dubbing.You can use this button to control the two VCR's simultaneously. See page 34 details.
16. **10-KEY button**
    - Press two numbers to select a TV station.
    - Also use for setting the clock and programming the timer.
17. **AUX:** Used to select line input to record or view the program input through the VIDEO and AUDIO input jack.
18. **TRACKING:** Press one of these buttons to minimize noise in the picture manually during playback.
19. **(mute):** Turn off the audio until you press this button again.
20. **CH(channel):** Same as on the VCR.
21. **F.ADV:** Advance the picture by one frame during still playback. See page 23 for details.
22. **STOP:** If this button is pressed, while the set is operating, the running of tape stops and all operating modes are cancelled (except for timer recording).
23. **Shuttle ring:** During play or still play, turn this ring to speed up or slow down the playback speed at a smooth variable tape, for everything from slow motion to visual search. Releasing the ring returns to play or still play.
24. **Jog dial:** Every time the jog dial is turned to a click position during play or still play, the tape moves forward or backward one frame at a time.

NOTE: The infrared rays will bounce off the walls and eventually reach the receiver on the VCR, but for best results transmit the rays directly to the receiver.

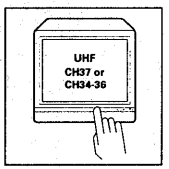
VIDEO CHANNEL SETTING

The RF converter changes the video and audio signals played back from the video tape to the same type of signals used for TV broadcasts. The RF converter output of this unit is set to UHF channel 37 for PAL/SECAM system TV receivers (UHF channel 34 - 36 for NTSC system TV receivers) prior to shipment. If this channel is employed for broadcasting, the converter channel must be reset to a vacant channel between CH32 - CH42 for PAL/SECAM systems (CH29 - CH42 for NTSC system).

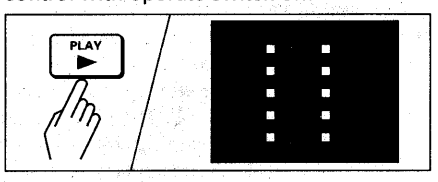


User's controls

1 Turn on VCR and TV, then set TV to UHF channel 37 for the PAL/SECAM systems (channel 34 - 36 for the NTSC system). If this channel is employed for broadcasting, select a vacant channel (CH32 - CH42 for the PAL/SECAM systems, CH29 - CH42 for the NTSC system).



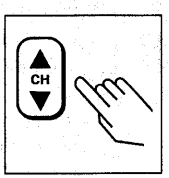
2 Press PLAY button on the VCR or remote control with operate switch off.



The test pattern appears on the TV screen. Fine tune your TV until the test pattern is received clearly.
Now the video channel has been preset. Press OPERATE button to turn off VCR.

You must always select this video channel with the channel selector of your TV when playing back a tape or viewing a TV programme selected with the CHANNEL button of the VCR.

NOTE:
If you cannot receive the test pattern correctly, select a vacant channel on your TV and press the CH (Channel) select button (▲ or ▼) to change the converter channel. Then fine tune your TV until the test pattern appears clearly.

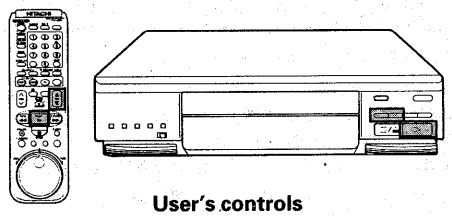


When connecting the VCR to a TV set provided with auto-tuning and the video channel cannot be set, operate as follows:

1. Remove the aerial cable from the AERIAL terminal of the VCR.
2. Press PLAY button on the VCR or remote control with operate switch off.
3. Press the Auto-tuning button of the TV.
4. Auto-tuning starts and it stops at video channel.
   The test pattern appears on the TV screen.
   NOTE: The auto-tuning indicator of the TV set changes to an exact tuning indicator.
5. Set the channel memory of the TV to ON and store the channel which was set in item 4. Now, the video channel of the TV has been set properly.
6. Reconnect the aerial cable to the VCR.

PRE-TUNING OF BUILT-IN TV TUNER

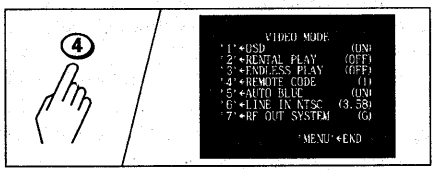
This VCR incorporates a complete television tuner with the required tuning controls. Once you have pre-tuned to preferred stations, you can select any of them by merely pressing the CH (channel) button or two number buttons 0 ~ 9.



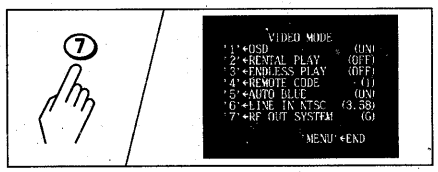
User's controls

1 Turn on the VCR and the TV, then set the TV to the pre-tuned video channel (described on page 13).

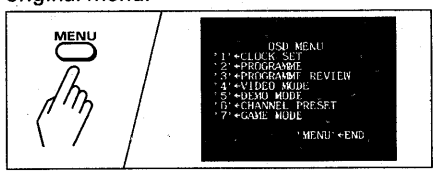
2 Press the MENU button, and then press ④ for video mode setting.



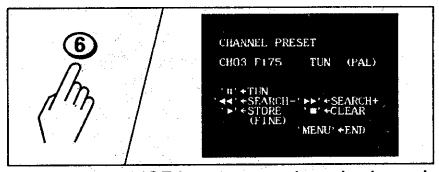
3 Press ⑦ to select "RF OUT SYSTEM" to match your TV.
Select "RF OUT SYSTEM (G)" when connected to a PAL (system B & G) or SECAM (system B & G) TV.
Select "RF OUT SYSTEM (I)" when connected to a PAL (system I) TV.
Select "RF OUT SYSTEM (K)" when connected to a PAL (system D & K) or SECAM (system D & K) TV.
Select any system when connected to a NTSC TV.



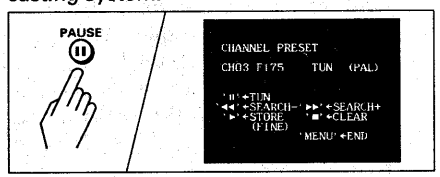
4 Press the MENU button twice to return to original menu.



5 Press ⑥ for channel setting.
The CHANNEL PRESET display will appear on the TV screen.



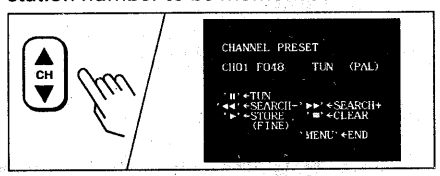
6 Press the PAUSE button to select the broadcasting system.



The display changes in the order (PAL)→(USA)→(JAPAN) each time the button is pressed.

(PAL): for pre-tuning to a PAL/SECAM broadcast.
(USA): for pre-tuning to U.S.A. or Canadian (NTSC) broadcast.
(JAPAN): for pre-tuning for a Japanese (NTSC) broadcast.

7 Press the CH (channel) button to select the station number to be memorized.

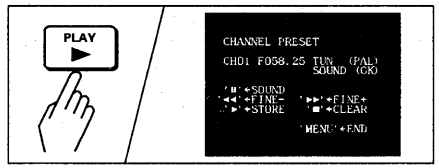


The above shows that the station number1 has been selected. The selected station number and channel frequency will appear from the lowest to highest channels.

8 Press and release the REW or F.FWD button to start tuning.
At a channel that is broadcasting, the picture appears on the TV screen. If the programme displayed is different from the channel to be preset, press the REW or F.FWD button again.

- Pressing the F.FWD button from the lowest to highest channels. Pressing the REW button scans in the reverse order.

9 Press the PLAY button when the desired channel is reached. The following display will appear on the TV screen, and "–" will be displayed in the VCR's display.



NOTE: If the TV programme of broadcast by a preset station does not appear clearly, press the REW or F.FWD button to fine tune the station. After fine tuning is completed, press the PLAY button again.
If the sound is abnormal in this step while the picture is clear, change the sound mode. (Only for PAL/SECAM broadcast)
Press the PAUSE button to switch between "SOUND (GK)" and "SOUND (I)". The sound should now become normal. Press the PLAY button to store the sound mode in memory.

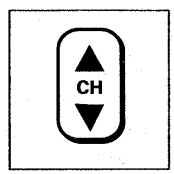
- Perform this procedure and make the sound of all other necessary channels normal.

10 Follow the same steps as explained in step 7 through 9 above for other channels. You can preset up to 49 stations in memory.

11 After having completed tuning to all required channels, press the MENU button. The stations preset in memory as shown in the above can be selected with the CH (channel) button.

Programme selection

The programme up and down controls on the remote control let you advance directly to the next higher or lower programmed station.



Channels direct preset

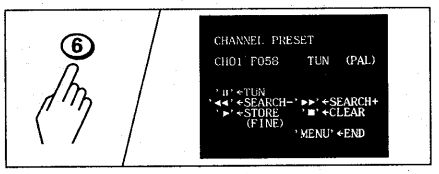
Press the 10-key buttons on the remote control unit instead of step 8 on page 14 to preset desired VHF, UHF and CATV channels.

- To preset UHF channel 39 in the station number 04, for example, press the CH(channel) button to display station number "" and use the number buttons on the remote control unit to enter the frequency of this channel, then press the PLAY button to store it in memory.
(Refer to the following table.)

	Broadcasting system		
	PAL	NTSC	NTSC (JAPAN)
VHF channel frequency	48.25~ 224.25MHz (2~12CH)	55.25~ 211.25MHz (2~13CH)	91.25~ 217.25MHz (1~12CH)
UHF channel frequency	471.25~ 855.25MHz (21~69CH)	471.25~ 801.25MHz (14~69CH)	471.25~ 765.25MHz (13~62CH)
CATV channel frequency	69.25~ 294.25MHz (X~S20CH)	217.25~ 295.25MHz (J~W CH)	

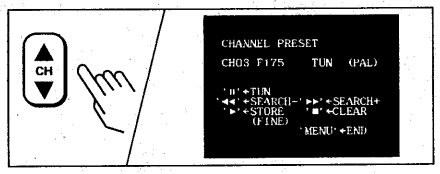
Eliminating unwanted preset channels
You can rearrange the desired stations by eliminating unwanted preset channels for channel up/down tuning.

1 Press the MENU button, and then press ⑥ for channel setting.



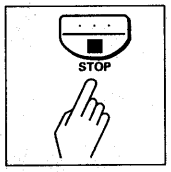
The CHANNEL PRESET display will appear on the TV screen.

2 Press the CH (channel) buttons until an unwanted station is found.



The selected station number and channel frequency will appear in the VCR's display.

3 Press the STOP button to clear the channel.



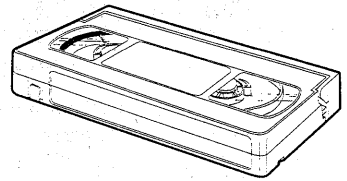
- The flashing station number in the VCR's display shows that it has been eliminated from memory.

4 Repeat the above steps for another channels, if needed.

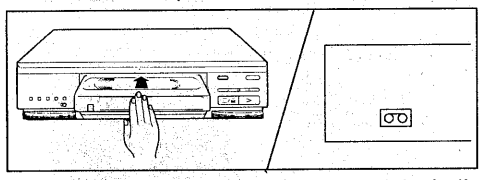
5 To end, press the MENU button.

CASSETTE TAPES

Use video cassette with the VHS mark in this VCR.



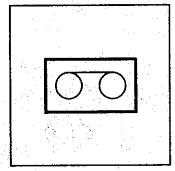
Insertion
Push the cassette through the door until the VCR mechanism pulls it into the compartment.



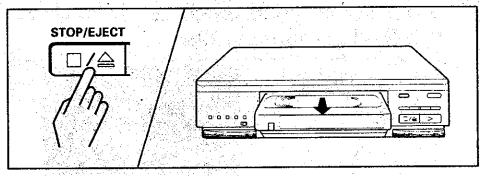
VCR power automatically turns on and the indicator turns on when the cassette is in place.

Indicator

- Will light when the cassette is in the VCR regardless of turning the OPERATE switch on and off.



Removal
Press the STOP/EJECT button on the VCR.

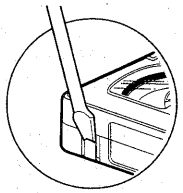


The cassette will come partially out of the compartment so you can pull it out.

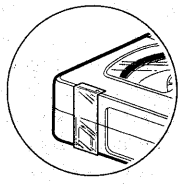
- The indicator turns off when the cassette is ejected.
- Cassette can be ejected with the power on or off.

Remember that:
— The VCR automatically enters the playback mode when a cassette without a safety tab is inserted.
— The VCR automatically ejects the cassette if the REC button is pressed when a cassette without a safety tab is in the VCR.
— Be sure to check the safety tab before inserting a cassette for the above reasons.

To avoid erasing a recording
Break off the safety tab using a screw-driver or similar tool



To re-record on a cassette which has its safety tab removed
Cover the hole with cellophane tape



Type of video cassette
The table below shows the recording time of different cassettes.

- **PAL/MESECAM tapes**

TYPES	TAPE SPEED	
	SP	LP
E-30	30 minutes	60 minutes
E-60	60 minutes	120 minutes
E-120	120 minutes	240 minutes
E-180	180 minutes	360 minutes
E-240	240 minutes	480 minutes

- **NTSC tapes**

TYPES	TAPE SPEED	
	SP	LP
T-30	30 minutes	90 minutes
T-60	60 minutes	180 minutes
T-120	120 minutes	360 minutes
T-160	160 minutes	480 minutes

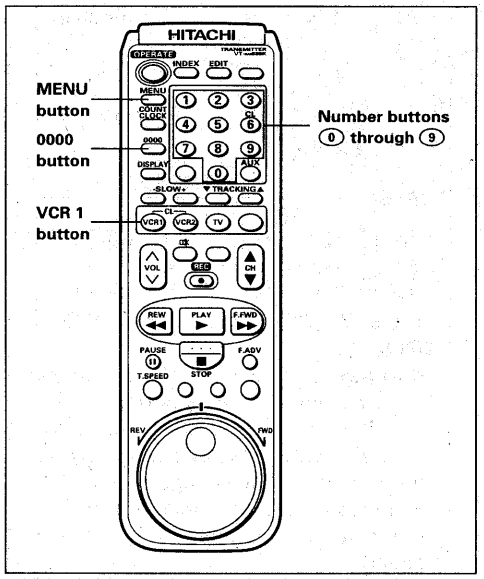
NOTES:
- Change over the T.SPEED button on the remote control unit only during recording. It is set to the speed used for recording automatically during play, so it is not required to change over it.
- It is recommended to record in the SP mode for higher quality picture and sound.

CLOCK TIME SETTING

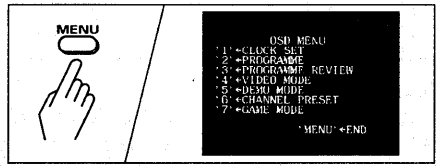
When the clock of the VCR is set correctly, it permits timer recording.

Before setting the clock, remember followings.

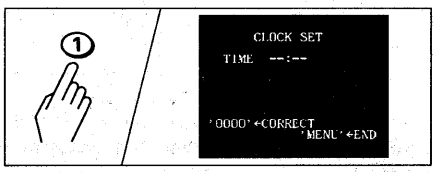
- The clock uses the 24-hour system.
- When you first plug in your VCR, the clock will read "– – : – –".
- Turn the VCR and TV on, then set the TV to the video channel.
- While you are setting the clock, the display on the TV screen will prompt you through the procedure.
- Always press ⓪ before a single-digit hour, minute, day, month or year.
- If you press the wrong digit during setting the clock, press the 0000 button repeatedly until the incorrect digit changes "–" then enter the correct digit.
- You have about one minute to perform each step in the procedure. If you do not proceed to the next step within this time, all entries are erased and you must start again.
- The clock must be set to the correct time before programming the timer for unattended recording or using the Instant Recording Timer (IRT) feature.
- If power is interrupted for more than 30 minutes, "– – : – –" will appear on the display and clock will need to be reset.
- Press the VCR 1 button, then use the following buttons on the remote control unit to set the clock.



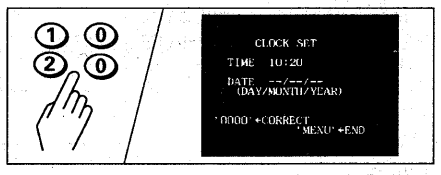
1 Press the MENU button.



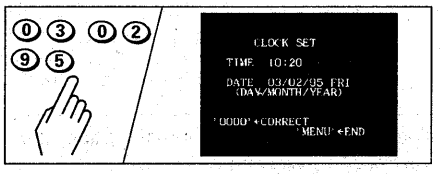
2 Press ① for clock setting.



3 Set the time.
For example, press ① ⓪ ② ⓪ for 10:20.

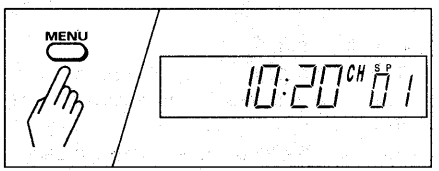


4 Set the time.
For example, press ⓪ ③ ⓪ ② ⑨ ⑤ for the third of February, 1995.



A day of the week appears automatically.

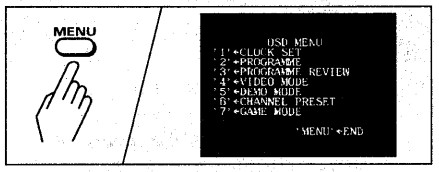
5 After setting the date, press the MENU button.



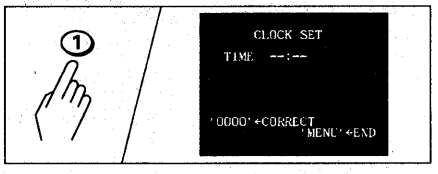
The clock appears on the display of VCR.

To correct the clock/date after setting

1 Press the MENU button.



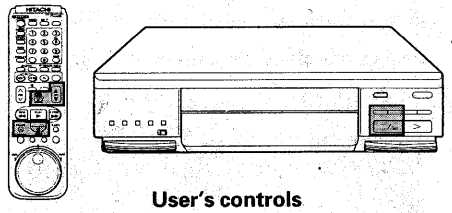
2 Press ① for clock setting.



3 Perform steps 3 through 4 in clock time setting on page 18. Then correct the clock/date.

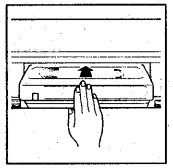
4 After correcting the clock/date, press the MENU button. The corrected clock appears on the display of VCR.

RECORDING TV PROGRAMMES

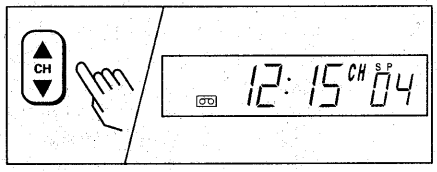


User's controls

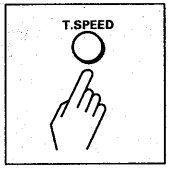
1 Insert a cassette.
NOTE: Be sure to check that the safety tab is not missing. If it is removed, the VCR is set to playback mode automatically.



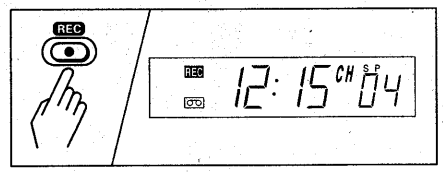
2 Select the programme to be recorded by pressing the CH(channel) or two number buttons.



3 Select the tape speed by pressing T.SPEED button on the remote control unit.
It is recommended to select the "SP" speed to obtain the best picture and sound.

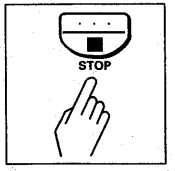


4 Press the REC button on the VCR or the remote control unit.

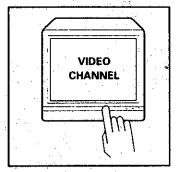


Now, recording starts.

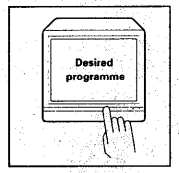
5 After the recording has been made, press the STOP button.



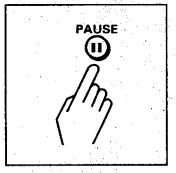
To view a programme while recording it
You can view a programme while recording it by merely selecting the video channel (described on page 13) with your TV.



To record one programme while viewing another
You can record one programme while viewing another by merely selecting the programme you want to view on your TV. The recorded programme can be viewed later at your convenience.



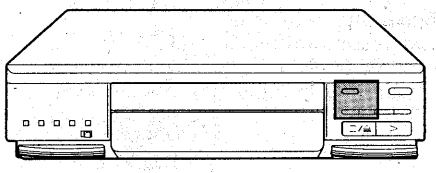
NOTES:
1. If you want to avoid recording unwanted material, press the PAUSE button. Press the PAUSE button again to release the pause mode. To prevent damage to tapes, the VCR will automatically switch from record/pause to the stop mode after about 5 minutes.



2. If you want to change programmes while in the record mode, press the PAUSE button then select the desired programme.
Press the PAUSE button to release the pause mode.
3. Your TV does not have to be on to make a recording because the VCR records TV programmes without the aid of your TV. It is only used for monitoring.

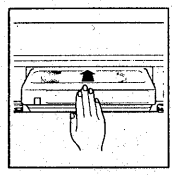
INSTANT RECORDING TIMER (IRT)

The Instant Recording Timer allows you to make simplified timer recording without using the programme timer.
Before using the IRT function, set the clock correctly. (See page 18.)

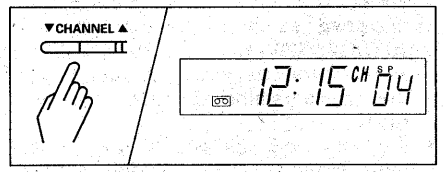


User's controls

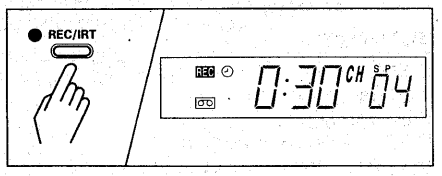
1 Insert the cassette (one with a safety tab) into the cassette compartment.



2 Press CHANNEL buttons or two number buttons to select the programme to be recorded.



3 Press the REC/IRT button once to start normal recording. Press the button again to indicate the recording time in the display.

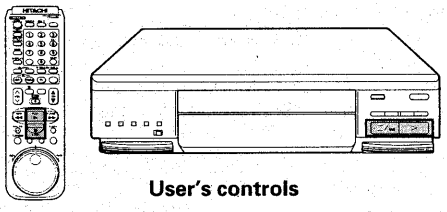


The time changes in the order 0:30, 1:00, 1:30, 2:00, 3:00 and 4:00 when the button is pressed several times. During recording, the remaining time is displayed.

4 At the end of recording the display reads 0:00; the VCR will automatically stop.

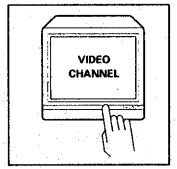
NOTES:
- To stop the VCR during "IRT", press OPERATE button and then STOP button within 10 seconds.
- You can use the REC buttons on the remote control unit instead of the REC/IRT button on the VCR.

PLAYBACK

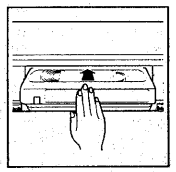


User's controls

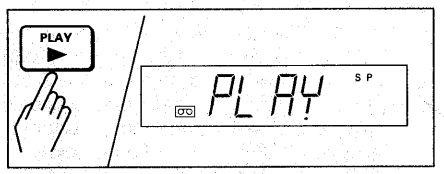
1 Turn the TV on and select the video channel (described on page 13).



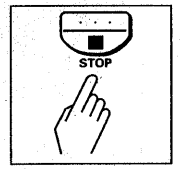
2 Insert the cassette.
NOTE: When the cassette (with its safety tab removed) is loaded, playback starts automatically.



3 Press the PLAY button.

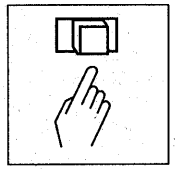


4 Press the STOP button to stop playback.



Auto tracking
When playback is started, the auto tracking function operates and adjusts tracking automatically so the picture is optimized.
- Auto tracking may not operate correctly when the tape is scratched or the recorded condition is poor. In this case, press the TRACKING button (▼ or ▲) to adjust tracking.

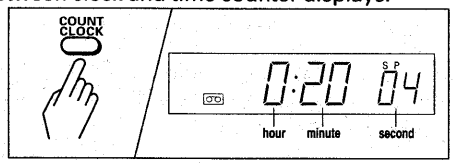
P. NOISE REDUCER (NORMAL/SOFT select switch)
When a tape is played back, noise may occur in the sound or the colour may disappear if you select [NORMAL]. In this case, select [SOFT].



SPECIAL CHARACTERISTICS

Linear time counter

Shows length of tape run in hours, minutes and seconds.
Press COUNT/CLOCK button to select the linear time counter display. Every press COUNT/CLOCK button changes the VCR's display between clock and time counter displays.



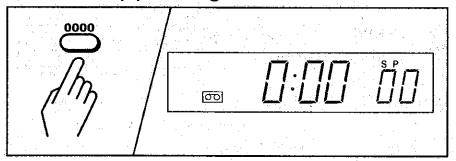
- Counter changes to 0:00 00 when the cassette is ejected.
- Tape starts moving from 0:00 00 and counter indicates amount of elapsed time.

NOTE: The linear time counter does not operate when nothing is recorded on the tape.

Counter memory function

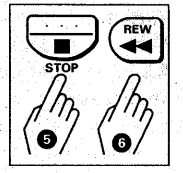
This is useful if there is a section of tape you want to view immediately after recording or if you want to return to the same point several times.

1. Begin recording or playing back a tape.
2. Press the COUNT/CLOCK button to display the linear time counter in the display.
3. At the point where you want playback to begin, reset the linear time counter to "0:00 00" by pressing the 0000 button.



4. Continue to play or record.
5. Press the STOP button when recording or playback finishes.
6. Press the REW button.

The tape will automatically stop at the position where "0:00 00" was preset.

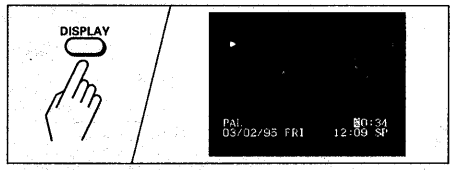


NOTES:

- The counter memory function will also operate in the fast-forwarding mode.
- The counter memory function does not operate when the tape is rewound automatically with the RENTAL PLAY display (ON) specified or when the ENDLESS PLAY display (ON) is selected.
- If a tape has sections recorded in both the NTSC and PAL/MESECAM formats, the counter memory function will not operate correctly.

Tape remaining

This function allows the time of the remaining tape to be displayed during recording or playback.
Press the DISPLAY button on the remote control unit. The tape remaining display (– : – –) will appear on the TV screen.
Start recording or playback. After approx. 60 seconds, press the DISPLAY button again, the remaining time appears on the TV screen.

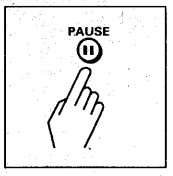


NOTES:

- If you use an E-240/T-160 tape, press the COUNT/CLOCK button to display the clock in the VCR's display, then press the 0000 button to adjust the VCR time remaining system for an accurate read-out. "E-240/T-160" appears on the TV screen.
- Use the tape remaining display as a reference. The tape remaining function is designed so it works correctly with E-30/60/120/180/240 and T-30/60/120/160 cassettes. If you use a cassette other than these, the tape remaining will not be displayed correctly.
- If you use an E-120/180/240 or T-120/160 tape that is wound to around its middle position, it takes time until the tape remaining is displayed. Before using such a tape, fast forward or rewind it to display the tape remaining in advance.

Still playback

Press the PAUSE button to stop the picture on the screen during playback.
Press the PAUSE button again to reset to normal playback or the STOP button to stop the tape.



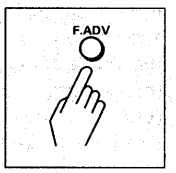
NOTES:

- If you see vertical shaking on the TV screen in the still playback mode, press either TRACKING control button (▼ or ▲) to minimize shaking.

- When the still playback mode continues for about 5 minutes, the VCR switches to the stop mode automatically to prevent damage to the tape.
- The playback picture will contain some noise in the still playback mode.

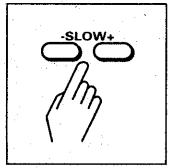
Frame advance

When you hold the F.ADV button on the remote control unit down during the still playback mode, tape will be played back frame by frame. It operates only after PAUSE button has been pressed.



Slow function

Press the SLOW button (– or +) on the remote control unit during playback to vary the playback speed.
Press the (SLOW) – button to slow down, press the (SLOW) + button to speed up.

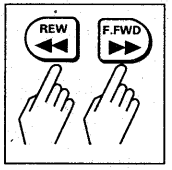


NOTES:

- When noise appears in the slow playback pictures, it can be removed by pressing the TRACKING buttons on the remote control unit. Removing the noise in the slow playback also lets you enjoy a noisefree picture in still playback.
- When the slow playback mode continues for about 5 minutes, the VCR switches to the stop mode automatically.

Visual search

This allows you to view the played back picture at high speed in both the forward and reverse directions.
Press either the REW or F.FWD button during playback.



Pictures can be viewed at high speed in either the forward or reverse direction. Press the button again or press PLAY button to return to the normal playback mode.

NOTES:

- The playback picture will have some horizontal noise bars in the picture.
- The picture quality of LP still/search/slow play is slightly worse and may lose colour and also may be vertically unstable.
  With NTSC tapes, jitter (shaking), skew and/or colour disappearing may occur in the still/slow play/frame advance modes.

Index function

Cassette tape may be recorded using the tape indexing feature for rapid location of any section.

To record using indexing feature

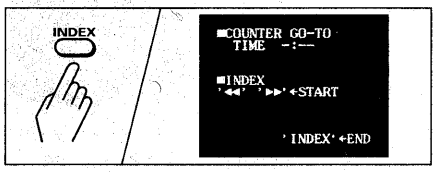
Record as usual. Each time you press the REC button to begin recording, an index signal is recorded on the tape.

NOTE: The index signal is not recorded if the PAUSE button is pressed and released during recording. Press the REC button from stop. If two programmes are recorded from the same station with one immediately follows the other, press the STOP button after the first programme. Press the REC button to resume recording. This inserts an index signal at the beginning of each programme.

To locate a programme using the indexing feature

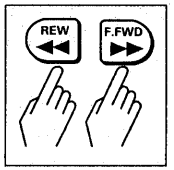
To locate a programme using index feature, turn on OPERATE switch of the VCR and insert a cassette which was recorded using the tape indexing feature then operate as follow.

1 Press the INDEX button.



The indexing menu will appear on the TV screen.

2 When the indexing menu is being displayed, press the REW or F.FWD button.
The tape will be rewound or fast forwarded until an index mark is detected.



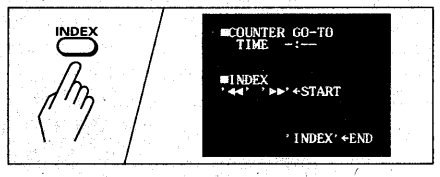
3 When the VCR has located an index mark, it will enter the playback mode for approximately 10 seconds. This is long enough for you to recognize the programme. Then the VCR winds tape to the next index mark in sequence.

4 When you see the programme you want to watch, press the PLAY button.

GO-TO function

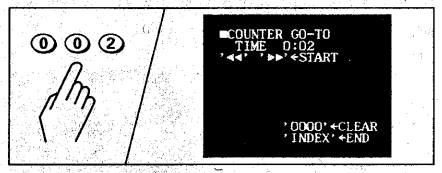
Use the linear time counter to conveniently search for positions a designated number of hours, and minutes, before or after the present position.

1 Press the INDEX button from the stop mode.
The GO-TO menu appears on the TV screen.



2 Press ⓪~⑨ button to enter the time you want to run the tape, either forward or backward. For example, if you want to review a screen that began about 2 minutes earlier in a video, press ⓪, ⓪, and ② to display 0:02 on the screen.

3 Then press REW button.

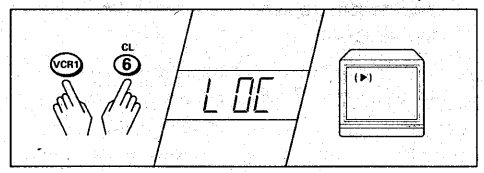


The tape rewinds to the place 2 minutes back from where you began, then starts playback automatically from that spot.

NOTE: If a tape has sections recorded in both the NTSC and PAL/MESECAM formats, the counter go-to function will not operate correctly.

Mode lock function

When you want to lock the current VCR mode, such as when recording, playing back, etc., press the VCR1 (VCR2) button and button number 6 on the remote control unit simultaneously. When the mode is locked, "LOC" appears in the VCR display and ( ) appears in the TV screen if the VCR status is called up.



During the mode lock, the VCR accepts the remote control operations but it does not accept any button operations on the VCR. To release the mode lock, press the OPERATE switch on the remote control unit or press the VCR 1 (VCR 2) button and button number 6 simultaneously again.

Automatic rewind

The VCR automatically rewinds the tape when the end of the tape is reached.

NOTES:
- To prevent accidental erasure, the VCR does not rewind the tape after timer recording.
- When the time counter is displayed in the VCR's display, the tape will stop automatically at approximately the "0:00 00" position.

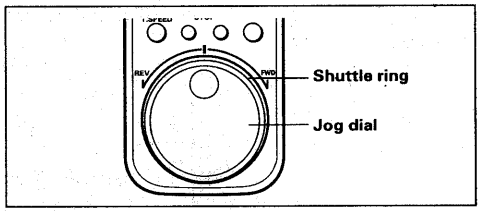
Rewind shut off

If the OPERATE switch is pressed during rewind operation, power will be turned off automatically after the tape has been completely rewound.

NOTE: If the counter memory is turned on, the VCR will stop rewinding and switch off at the specified position.

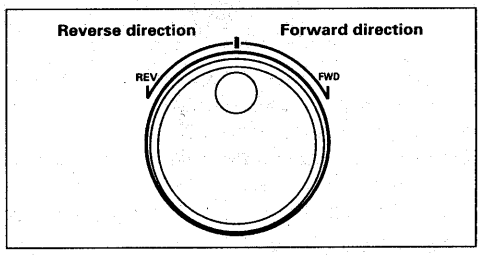
PLAYBACK USING JOG/SHUTTLE

Use of jog/shuttle allows many different kinds of playback; still play, slow-motion play, normal play, double-speed play, triple-speed play, forward search, reverse slow-motion, reverse play, reverse double-speed play, reverse-triple-speed play and reverse search.



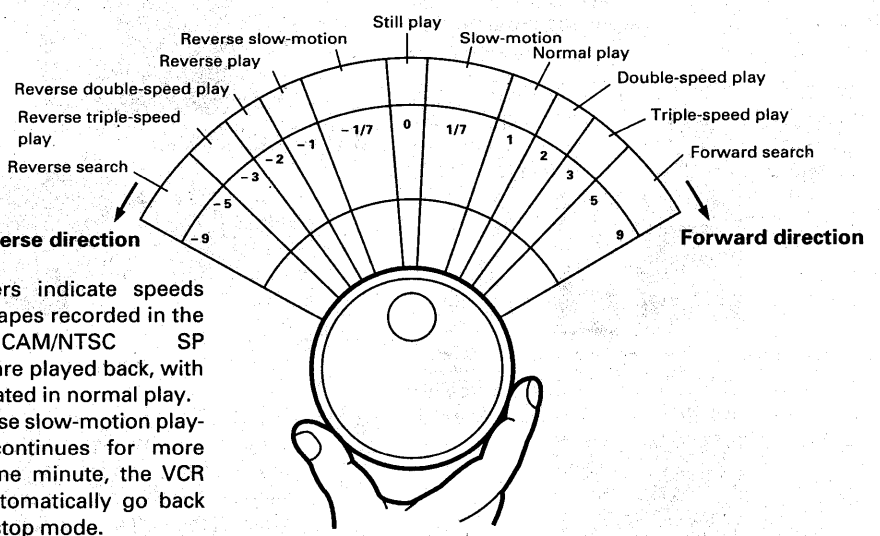
■ How to use the jog dial

Turn the jog dial during still play for forward or reverse frame advance.
- Every time the jog dial is brought to where a slight click is felt, the picture moves one frame.
- Release the hand returns to still play.



■ How to use the shuttle ring

If the shuttle ring is turned during play or still play, turning the ring to the positions indicated gives those special effects.
- Release the hand from the shuttle ring for play or still play.

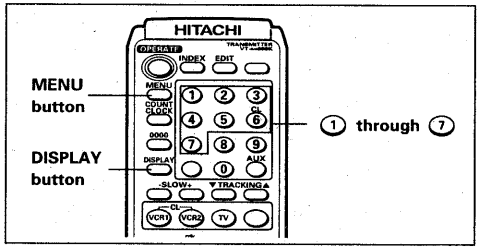


- Numbers indicate speeds when tapes recorded in the PAL/SECAM/NTSC SP mode are played back, with 1 indicated in normal play.
- If reverse slow-motion playback continues for more than one minute, the VCR will automatically go back to the stop mode.

NOTES:
- The picture may have noise, streaking or other distortion when it changes.
- If noise bars appear on TV screen during slow/reverse slow/still mode, first set the VCR to slow mode and then press TRACKING control button (▼ or ▲) to minimize noise bars. Now the noise bars in still mode are eliminated automatically. After adjusting the tracking during slow mode, set the VCR to reverse slow mode and then press TRACKING control button (▼ or ▲) to minimize noise bars.

ON SCREEN DISPLAY

Pressing the MENU button will display various menus on the TV screen.

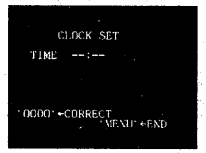


1. Turn on the OPERATE switches of the VCR and the TV, then set the TV to the pre-tuned video channel.
2. Point the remote control at the receiver on the front of the VCR.
3. Press MENU button. The "menu", as illustrated, will appear on the TV screen.

Press one of ① ~ ⑦ to select the required display.

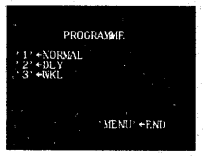
① Clock time setting

- Press ①. The CLOCK SET display will appear on the TV screen. Use this display to set the clock. See page 18 for details.



② Programming the timer

- Press ②. The display will prompt you to select the type of timer recording.



- To record a programme on a single day, press ① to select NORMAL.
- To record a programme at the same time every day, press ② to select DLY.
- To record a programme on the same day every week, press ③ to select WKL. Refer to TIMER RECORDING on page 31 for details.

③ Checking (reviewing) the programme information

- Press ③. The TV screen will display for 1 minute the information you entered for the lowest programme number.

- Press ① again if you want to view the next programme information.
- Pressing ⓪ will clear the programme.
- Press the MENU button to return to the original picture.

④ Video mode setting

You can change the VCR mode as required.

- Press ④. The "menu" as illustrated, will appear on TV screen.
  Press ① through ⑦ to select the required function.

■ **OSD [ON] or [OFF]**

Press ① to change ➡

[ON]: Whenever you change the mode, the new mode is automatically displayed on the TV screen for a few seconds.

[OFF]: The OSD will be switched off and nothing will be displayed on the TV screen. When this is selected, no operation mode will be displayed on the TV screen if the VCR is operated. This mode is useful to prevent recording of the On-Screen Display during tape copying.

NOTE: If the DISPLAY button is pressed, the following are obtained.

1st press ••••• Calls up the mode display on TV screen.

2nd press •••• Clears the display.

■ **RENTAL PLAY [ON] or [OFF]**

Press ② to change ➡

[ON]: The VCR will automatically start playback when a cassette with the record-protect tab removed is inserted into the VCR.
Then the VCR will enter the rewind mode when the tape reaches its end or when the VCR plays the non-recorded section for approximately 30 seconds, and then VCR will eject the cassette at the beginning of tape and turn the power off.

[OFF]: The rental play feature is switched off. (However, the VCR will automatically start play when a cassette with its safety tab removed is inserted into the VCR).

NOTES:

- It is impossible to set both the RENTAL PLAY and ENDLESS PLAY functions to [ON] at the same time. If you attempt to do so, the other function is automatically set to [OFF].
- When a cassette with its safety tab is loaded, rental play does not operate even if this function is set to [ON].

■ **ENDLESS PLAY [ON] or [OFF]**

Press ③ to change ➡

[ON]: You can play the tape from the beginning to the end repeatedly. while in the endless play, you advance and visual search operations, however, this does not mean switching off the endless play feature.
To switch off the endless play, you must select [OFF] with this display.

[OFF]: The endless play feature is switched off.

■ **REMOTE CODE [1] or [2]**

Press ④ to change ➡

Use this display to select whether to operate your VCR as VCR 1 or VCR 2. Select [1] in the display to operate the VCR as VCR 1; select [2] to operate the VCR as VCR 2.
This is convenient when you want to add another Hitachi VCR to your system, and control both VCRs with the same remote control unit.

[1]: Press the VCR 1 button of the remote control to operate the VCR.

[2]: Press the VCR 2 button on the remote control to operate the VCR.

NOTES: The VCR will only respond to the remote code setting ([1] or [2]) you have selected. If you select [2] display, you must press the VCR 2 button on the remote control unit before the VCR will respond to the remote control.

■ **AUTO BLUE [ON] or [OFF]**

Press ⑤ to change ➡

[ON]: The TV screen becomes blue when a tape without a recording is played back.

[OFF]: The TV screen does not become blue.

■ **LINE IN NTSC [3.58] or [4.43]**

Press ⑥ to change ➡

Use this display to select the type of the input signal when you operate this VCR as a recording machine for tape dubbing.

[3.58]: To record 3.58 NTSC tapes.

[4.43]: To record 4.43 NTSC tapes.

■ **RF OUT SYSTEM [G], [I] or [K]**

Press ⑦ to change ➡

[G]: Select "G" if your TV corresponds to PAL system B&G or SECAM system B&G.

[I]: Select "I" if your TV corresponds to PAL system I.

[K]: Select "K" if your TV corresponds to PAL system D&K or SECAM system D&K.

See page 14 for details.

⑤ OSD effects demonstration

You can demonstrate OSD effects used in this VCR.

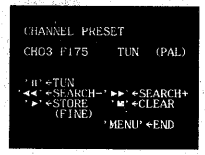
- The pictures demonstrating the OSD effects are each displayed for about 10 seconds.

Press ⑤ to change

- To stop the demonstration, press MENU button.

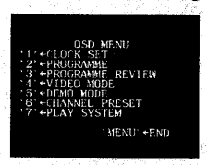
⑥ Pre-tuning of built-in TV tuner

- Press ⑥. The CHANNEL PRESET display appears on the TV screen.
- Details for pre-tuning a built-in TV tuner are on page 14.



⑦ Selection of play system

1. Press the MENU button during playback.



2. Press ⑦ to select the play system.

NTSC recorded tape

PAL/SECAM/MESECAM recorded tape

- When an NTSC recorded tape is played back;

[PAL 60]: Press ① to select [PAL 60] when connecting this VCR to a PAL colour TV providing vertical sync adjustment circuitry (or volume) for 60 Hz.

[4.43 NTSC]: Press ② to select [4.43 NTSC] when connecting the Multi-colour TV which does not have NTSC 3.58 but only 4.43.

[3.58 NTSC]: Press ③ to select [3.58 NTSC] when an NTSC 3.58 signal is output.

- When a PAL/SECAM/MESECAM recorded tape is played back;

[AUTO]: The VCR will automatically discriminate the recording system of the played back picture.

⑦ Selection of game mode

You can enjoy a slot machine, ball catch and master-mind game with this VCR.

1. Press ⑦ to select game mode.

2. Press ① for slot machine game, press ② for ball catch game or press ③ for master-mind game

For example, press ① for slot machine game. "777" appears on TV screen and you can enjoy the slot machine game. Refer to

HOW TO PLAY THE GAME MODE

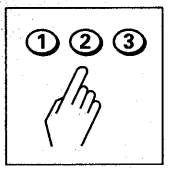
You can enjoy a slot machine, ball catch game and mastermind game with this VCR.

■ Preparation for game mode

1 Turn the VCR and TV on , then set the TV to the video channel.

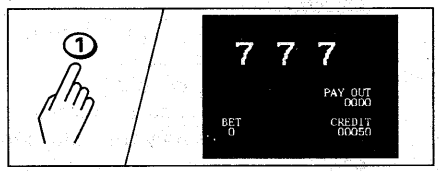
2 Press the MENU button and then press ⑦ to specify the game mode.

3 Press the ①—③ button to specify slot machine game, ball catch game or mastermind game.



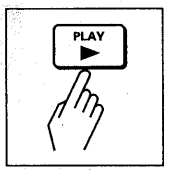
■ Slot machine game

1 Perform steps 1 through 3 above, and then press ① for slot machine game.

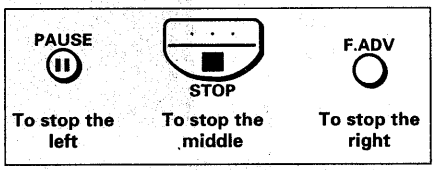


"777" appears on the TV screen and you can enjoy the slot machine game.

2 Press the PLAY button. The three wheels start rotating.



3 Press the PAUSE button to stop the left symbol, the STOP button to stop the middle symbol, and the F.ADV button to stop the right symbol.



- If you do not stop the symbols, they will stop automatically after about 10 seconds.
- If three of the same symbol are aligned, you get the points obtained by multiplying the bet (3) by the rate according the aligned symbols as shown below.

4 Repeat steps 2 and 3 to continue the game.

- If you have 3 or more CREDIT points, 3 is specified as BET automatically when the PLAY button is pressed, then the game will start.
- If you have 1 or 2 CREDIT points, press F.FWD to specify 1 or 2 as BET, then press the PLAY button.
- If your CREDIT becomes 0, the game is over. To continue the game, press the REW to reset the display.

5 To stop the game midway, press the MENU or OPERATE button.

NOTES:

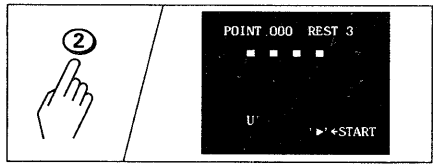
- If the following symbols are aligned, the BET point multiplied by the rate below will be added to the CREDIT point.

7 7 7	X 1000	¿ ¿ ¿	X 50
A A A	X 500	% % %	X 50
Φ Φ Φ	X 200	* * *	X 20
$ $ $	X 100	* * ⬚	X 10
& & &	X 100	* ⬚ ⬚	X 2

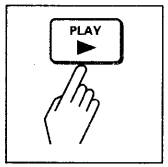
- If the CREDIT points become 99999, the game will be cleared.

■ Ball catch game

1 Perform steps 1 through 3 in "Preparation for game mode" on page 29. Then press ② for ball catch game.



2 Press the PLAY button.
Balls fall in sequence.



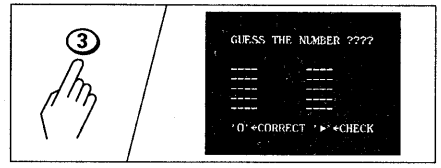
3 Press REW or F.FWD to move "U" and catch the ball.
- If you fail to catch balls three times continuously, the game is over.
- Each time a ball is caught, one point is added.
- The ball falling speed increases every 100 points.
- If the points become 999, the game will be cleared.

4 To stop the game midway, press the MENU or OPERATE button.

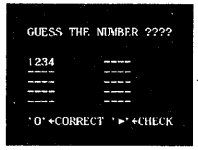
■ Mastermind game

With this game, guess the four hidden numbers in the correct places and make a hit.

1 Perform steps 1 through 3 in "Preparation for game mode" on page 29. Then press ③ for mastermind game.

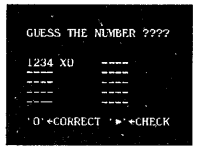


2 Select four numbers from ①—⑧ and press the numeric buttons.
For example, press 1, 2, 3 and 4.



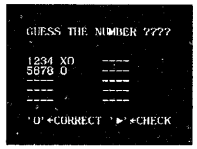
- You can select the same number any number of times.
- Press "0" to change the selected number. The numbers will go out one by one from the last. Erase the number you want to change, select a desired number and press the numeric button.

3 Press the PLAY button to check if the numbers selected in step 2 match the four hidden numbers.



- X and O appear on the right of the four numbers selected in step 2.
- X shows that the selected numbers match the hidden numbers in the correct places.
- O Shows that the selected numbers only match the hidden numbers.
- If no number matches, nothing is displayed.
- If XO appear as shown in the display above, you can guess that one selected number matches the hidden number in the correct place and another selected number matches only the hidden number.

4 Repeat steps 2 and 3 to guess the hidden numbers.



- You can try 10 times.
- If you cannot guess the four hidden numbers within 10 attempts, the game will be over and the hidden numbers will be displayed.
  To restart the game, press ⑨ when the game over display appears. The display will return to that in step 1.

5 To stop the game midway, press the MENU or OPERATE button.

TIMER RECORDING

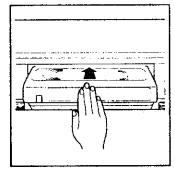
The programmable electronic clock/timer permits the unattended recording of 8 preselected programmes within a period of 1 year, including the same programme(s) repeated on every day and the same programme(s) every week. It turns the unit on and off and selects the programme automatically.

The timer can be programmed with the provided remote control unit. You must set the clock in the VCR correctly before programming the timer.

Preparations for timer recording
- Your TV does not have to be on to make a recording because the VCR records TV programmes without the aid of your TV. It is only used for monitoring.

1 Make sure that the clock shows the present time and day correctly.

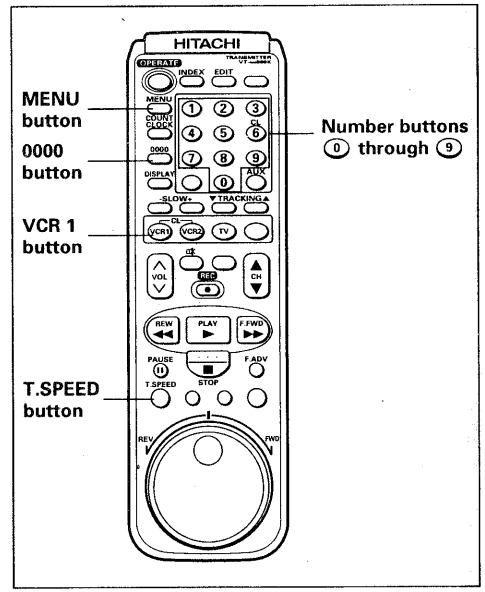
2 Insert a cassette.
Be sure to check that the safety tab is not missing. If the safety tab is missing, recording will not begin.



3 Programme the timer.
See next page for details.

4 Turn the OPERATE switch off.

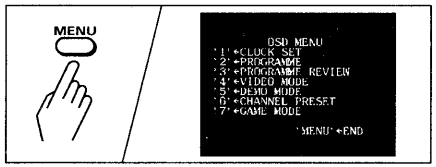
Before programming the timer, remember followings.
- Press the "VCR 1" or "VCR 2" button responding to the "REMOTE CODE" display described on page 27.
- Turn the VCR and TV on, then set the TV to the video channel.
- While you are programming the timer, the display on the TV screen unit will prompt you through the procedure.
- Always press ⓪ before a single-digit programme number, hour, minute, day or month.
- If you press the wrong digit during programming the timer, press the 0000 button repeatedly until the incorrect digit changes "–" then enter the correct digit.
- You have about one minute to perform each step in the procedure. If you do not proceed to the next step within this time, all entries are erased and you must start again.
- Use the following buttons on the remote control unit when programming the timer.



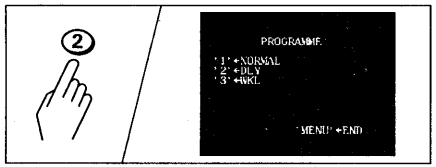
TO PROGRAMME THE TIMER

1 Turn the VCR and TV on, then set the TV to the video channel.

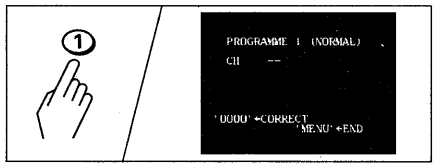
2 Press the MENU button.



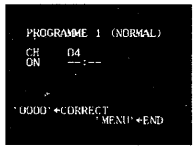
3 Press ② to specify the programme for timer recording.



4 Press ①, for example, to select a programme to be recorded on a single day



5 Select the TV station number to be recorded.
For example, press ⓪ ④ for the TV station 4.



NOTE: Press the AUX button to select "L" on the TV screen panel in place of a station number when recording video and audio from external equipment.

6 Select the start time.
For example, press ⓪ ⑥ ⓪ ⓪ for 6:00.

7 Select the stop time.
For example, press ⓪ ⑧ ⓪ ⓪ for 8:00.

8 Select date for recording.
To record on a single day up to one year ahead:
For example, press ⓪ ⑦ ⓪ ⑥ to begin recording on the 7th of June.

A day of the week will appear automatically on the TV screen.

9 Press the T.SPEED button to select recording speed.

NOTE: If you select "LP" when recording NTSC signals, the actual tape speed is EP.

10 After programming, press the MENU button.

11 If you want to programme another programmes, perform steps 3 ~ 10.

12 To activate the VCR's timer and make a recording at the preselected time, be sure to turn the system power off. Of course a cassette which has its safety tab must be inserted.

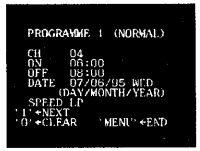
Operating notes

If you attempt to specify a programme for timer recording in step 3 after programming the 8 programmes, a warning message (FULL) will appear on the TV screen. This message informs you that the full capacity of 8 programmes has already been stored in the timer.

To check programming in the memory of the VCR

1. Turn the TV and VCR on.
2. Set the TV to the video channel.
3. Press the MENU button.
   - The menu will appear on the TV screen.

4. Press ③.
   - The programme will appear.
   - Press ① repeatedly to check all programmes.
   - Each programme is displayed for approx. one minute.



5. Press the MENU button after checking programmes.
   - The TV will return to a normal picture.
   - If the MENU button is not pressed within one minute, the TV will return to a normal picture.

To clear a programme from the VCR's memory

1. Display the programme to be cleared on the TV screen. See "To check programming in the memory of the VCR" at left for the operation.
2. Press ⓪.
   The programme is cleared and the picture changes to that shown below.

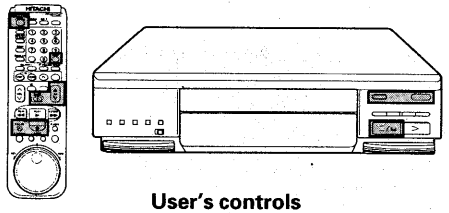
3. If you want to clear another programme, press ① to display the programme to be cleared and then press ⓪.
4. Press the MENU button when clearing is completed. The TV screen returns to a normal picture.
   - When the ⓪ is not pressed within one minute, the TV screen returns to a normal picture.

Programming errors

If programmes overlap, the VCR will select the programme with the earlier start time. When that programme is over, the VCR will switch to the next programme. If the start times are the same, the VCR will select the programmes in numerical order.

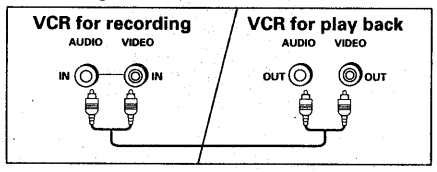
TAPE DUBBING

This Hitachi video tape recorder allows you record from another VCR by connecting AUDIO IN/VIDEO IN jacks located on the rear panel of the VCRs. This connection permits easy tape copying.



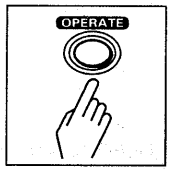
User's controls

1 Connect a second (playback) VCR to this (recording) VCR.

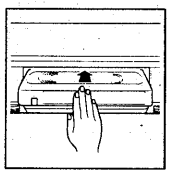


In this case, the TV must be connected to RF OUT terminal of the recording VCR.

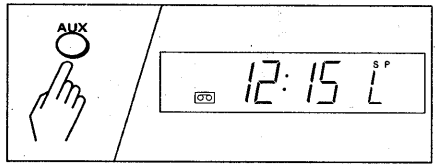
2 Switch both VCRs and the TV on.



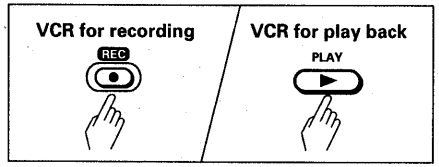
3 Insert a blank cassette into the VCR for recording, and source cassette into the playback VCR.



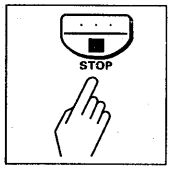
4 Press the AUX button to select "L" (line input) if using this VCR as a recorder.



5 Press the REC button on the recording VCR and PLAY on the playback VCR.

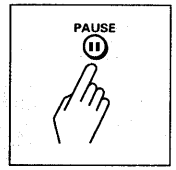


6 To end tape dubbing, press both STOP buttons.



To edit out unwanted material

If you want to edit out unwanted material, press the PAUSE button at the appropriate time on the recording VCR while it is recording. Press the PAUSE again to resume recording.



NOTE: The remote control unit provided can perform remote operation of both VCRs. See page 10 for details.

How to use the EDIT button

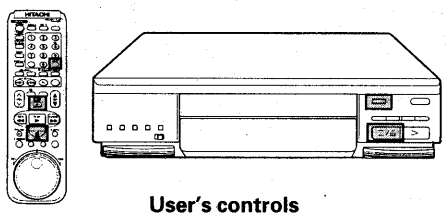
Use the EDIT button to control the two VCRs used for dubbing.

1. Set the remote code of this VCR to "VCR 2" and that of the other VCR to "VCR 1". Select REMOTE CODE [2] as described in the paragraph on the video mode setting procedure.
2. After performing step 4 in TAPE DUBBING, point the remote control at both VCRs and press the EDIT button. Both VCRs will enter the pause mode.
3. Perform step 5. The recording VCR will enter the record pause mode and the playback VCR will enter the play pause mode.
4. Point the remote control at both VCRs and press the EDIT button. The VCRs will start recording and playback simultaneously.
5. To stop dubbing, press the EDIT button. Both VCRs will enter the pause mode at the same time. Then press the STOP button on both VCRs.

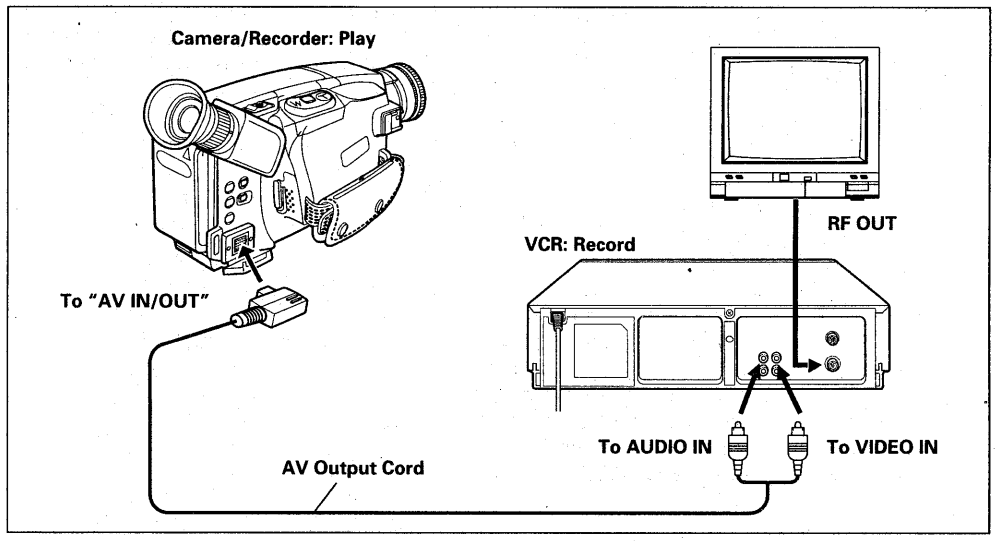
NOTE: Connect the two VCRs by placing them near to each other when you want to use the EDIT button for tape dubbing.

RECORDING FROM A VIDEO CAMERA/RECORDER

If you wish to exchange or copy some of your friend's favourite home recordings, the following instructions can be used to connect camera/recorder to VCR for this purpose.



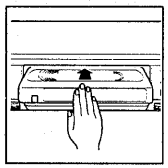
User's controls



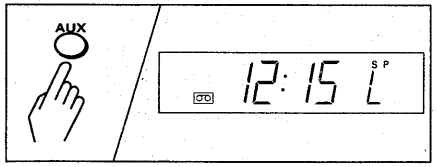
1 Connect the AV output cord to AV In/Out of your camera/recorder.

2 Connect the other ends to AUDIO IN, VIDEO IN of your VCR respectively.

3 Insert a cassette.

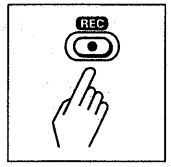


4 Press the AUX button so as to have "L" indication light up on the display.

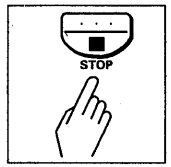


5 Play the tape on the camera/recorder.

6 Press the REC button to start recording.

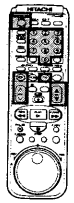


7 To stop recording, press the STOP button.



NOTE: To record an NTSC tape in a video camera/ recorder, select the input signal according to the type of the tape before starting recording. Refer to LINE IN NTSC [3.58] or [4.43] in video mode setting OSD on page 27 for details.

HOW TO OPERATE YOUR TV BY USING THE REMOTE CONTROL UNIT

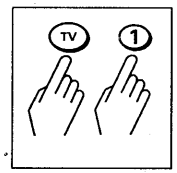


This remote control unit is designed to operate 14 different types of TVs, you must first programme the remote control unit to match the remote system in your TV.

1 Install the batteries in the remote control unit.

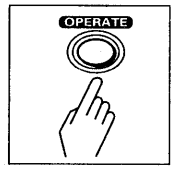
2 Turn on your TV.

3 Point the remote control at the front of your TV. Hold down the TV button while you press the TV code button corresponding to the type of TV as shown in the table on the next page. For example, if you have a Hitachi TV, press the TV and "1" buttons at the same time.



If the TV channel changes, your TV can be controlled by this remote control. The buttons on the remote control shown on the next page will now control your TV.

4 If TV channel cannot be changed by pressing any TV code button, press the TV button and TV code button simultaneously, then press the OPERATE button.



If your TV turns on and off, your TV can be controlled by the remote control.

NOTE: If your TV does not turn on and off, press another TV code button and perform step 3 and 4. (Try all the TV code buttons listed in the table on page 37.)

5 If your TV does not respond to any of the above steps, the remote control unit can not operate your TV.

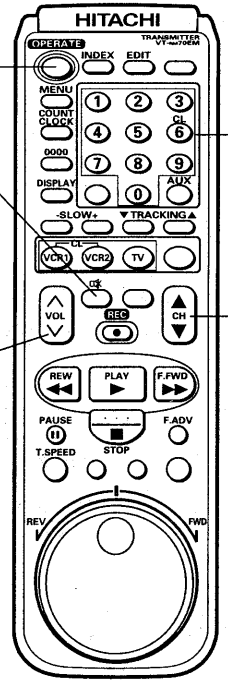
IMPORTANT NOTICE:
While Hitachi's remote control unit is compatible with most television sets, it is possible that the remote control unit will not work with your TV set.

Most buttons on the remote control unit will not control the TV unless the TV button is pressed. If the VCR 1or VCR 2 button is pressed, you can not control your TV. Be sure to press the TV button when you control your TV.

OPERATE button
- Press to turn on your TV.
- Press again to turn off your TV.

Mute button
- Press mute button to quickly reduce sound to minimum level without affecting picture.
- To restore sound, press mute button again.

VOL (volume) ∧ / ∨ buttons
- Press VOL ∧ to increase volume.
- Press VOL ∨ to decrease volume.



Number buttons ⓪~⑨
- Depending on the type of TV, these buttons can either control the TV or not.

CH(Channel) ▲/▼ buttons
- Press CH(channel) (▲ or ▼) to change your TV channel.

Notes:
- To select channels 10~19 on the TV, press the MENU button and then number buttons ⓪~⑨. When selecting channel 12, for example, press the MENU button and then button ②.
  To select channels 20~29, press the DISPLAY button and then number buttons ⓪~⑨ when selecting channel 22, for example, press the DISPLAY button and then ②.
- Only the remote system of the mute feature is different between remote transmission codes "2 TV" and "3 TV".
  When only the mute feature is not operated properly by the remote control with "2 TV" ("3 TV") selected, set the transmission code to "3 TV" ("2 TV").
- The remote control has a memory which enables it to operate some Hitachi TVs and, in the same way, some TVs from other manufacturers.

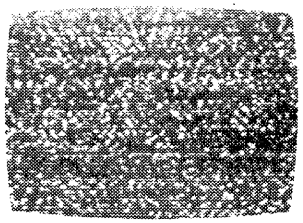
TV code button	①	②	③	④	⑤	⑥	⑦	⑧	⑨	⓪	CH▲	CH▼	VOL ⋮	VOL ⋮
Coding system	NEC$53 PAL-53	NEC$50 UK-1	NEC$50 PAL-50	NEC$53 SIN,UK-2	SIEMENS FINLUX	ITT SALOLA	RC-5 LOEWE	Sony	Panasonic	Sanyo	Toshiba	Sharp	Mitsubishi	JVC
Type of TV	Hitachi TV	Hitachi TV	Hitachi TV	Hitachi TV	Finlux TV	Salola	Loewe TV	Sony TV	Panasonic TV	Sanyo TV	Toshiba TV	Sharp TV	Mitsubishi TV	JVC TV

- Column "Type of TV" shows the TVs as an example. Use this table as a reference when setting TV codes.

MAINTENANCE

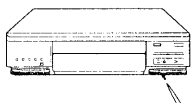
1. To maintain the optimum performance of this VCR, regular periodic maintenance is required. Your dealer will advise you further.
2. Maintenance and adjustments may not be carried out by the user. In all cases of difficulty or doubt, consult your dealer.
3. Head cleaning
   - Dirt accumulated on the video heads after a period of time may cause the playback picture to become blurred or part of the video information to be lost. This does not mean that the recorded programme has been erased but head cleaning is required.

Since this VCR uses an auto head cleaning system, dirt does not often adhere to the heads. Even when it is difficult to remove dirt using this system, consult your dealer.



PROBLEM GUIDE

Sometimes problems can be solved easily by checking a few basic things. Check below before you call for help or take your unit to your dealer.

PROBLEM	SOLUTION
No power	• Check to see if the VCR is plugged into an AC outlet.
Does not respond to remote control unit	• Check to see if there are batteries in the unit and their polarities are correct. • Remote control unit not aimed at the VCR. • Weak battery in the remote control unit. • First press the VCR 1 (VCR 2) button when you use the remote control to operate the VCR, and press the TV button to operate the TV.
Will not record	• No cassette in the VCR. • Satety tab removed from cassette. (In this case, cassette will be ejected.)
Will not playback	• No cassette in the VCR. • For playback, TV must be tuned to the video channel. • Set the TV to the video input mode when the VCR and TV are connected via AUDIO/VIDEO connector (see your TV manual).
Snowy/noisy picture during playback	• Make sure the TV is fine tuned. • Head cleaning may be required. See "MAINTENANCE" section. • Some snow or streaks are normal during slow, visual search and still playback.
Timer recording not made	• VCR not turned off to activate timer recording. • Programmes entered incorrectly. • Clock was not set correctly. • Programme exceeded cassette length. • No cassette or cassette's safety tab removed.
Cassette stops before being completely rewound	• Counter memory has operated. (Tape stops at "0:00:00" if it is on.)
Clock shows –:– –	• Power interrupted.
Poor/no picture in normal TV viewing	• Carefully check aerial connection.
The indication of the VCR's display appears abnormal or no button can be engaged.	• Push the reset switch using a toothpick, etc. The display will be reset. Then set the information again. 

SPECIFICATIONS

Format:	VHS PAL & NTSC Standard
Recording:	Rotary Two-Head Helical Scan Azimuth Recording
Head:	Double Azimuth 4 heads 2 for SP 2 for LP/EP
Tape Speed:	PAL/MESECAM: 23.39 mm/sec (SP), 11.7 mm/sec (LP) NTSC: 33.35 mm/sec (SP), 16.67 mm/sec (LP) (playback only), 11.12 mm/sec (EP)
Tape Width:	12.7 mm
Operation Temperature:	5°C to 40°C
Video:	PAL & MESECAM colour & CCIR monochrome signal 625 lines Standard (3.58 MHz) and modified (4.43 MHz) NTSC colour & EIA standard 525 lines
Recording Time:	480 min. (using E-240 cassette) (PAL/MESECAM LP mode) 480 min. (using T-160 cassette) (NTSC EP mode)
Aerial Input:	PAL mode: VHF: 2 — 12, UHF: 21 — 69, CATV: X — S20 American NTSC mode: VHF: 2 — 13, UHF: 14 — 69, CATV: J — W Japan NTSC mode: VHF: 1 — 12, UHF: 13 — 62
RF Output:	UHF channel 37 (32 — 42 adjustable) ... System I, G and K UHF channel 34 —36 (29 — 42 adjustable) ... NTSC
Video Input:	0.5 to 1.5V p-p 75 ohm Unbalanced
Video Output:	1V p-p 75 ohm Unbalanced
S/N Ratio (Video):	43 dB
Audio	S/N Ratio : 43 dB Frequency Range : 70 Hz to 12 kHz
Horizontal Resolution:	Colour 260 lines
Audio Input:	– 7.8 dBm 50 Kohm
Audio Output:	– 7.8 dBm 1 Kohm
Fast Forward/Rewind time:	About 3 minutes (with E-180/T-120 cassette)
Power:	AC 110 — 240V, 50/60 Hz
Power Consumption:	20W (including timer)
Timer:	24 hour digital indication
Cabinet Size:	380 mm (W) x 93 mm (H) x 320 mm (D)
Weight:	4.5 kg
Accessories Included:	1 — Aerial cable 1 — Infrared remote control unit 2 — Batteries 1 — Main plug adapter

* Design and specifications are subject to change without notice.

1. GO ON VIDEO CHANNEL – NUMBER 3
2. PRESS MENU
3. PRESS 2 FOR PROGRAMME
4. PRESS 1 FOR NORMAL.
5. PRESS EITHER 01, 02 FOR CHANNEL
6. KEY IN ON TIME E.G. 17:25
7. KEY IN OFF TIME : E.G. 18:25
8. KEY IN DATE.
9. PRESS MENU.
10. PRESS OPERATE.

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